

Digital Forensic and Biometrics Pre-term exam

December 2023

1 Open answers

1.1

Camera ballistic: describe the strategies for PRNU estimation and its use in camera identification. Specify what's PRNU, how it's generated and how it can be computed from images. Describe a strategy to match a given image under analysis to a specific camera commenting the limits of its application.

1.2

Describe the problem of anomaly detection discussing different types of anomalies, learning conditions, the performance metrics and the different machine/deep learning strategies that can be adopted (with pros and cons)

1.3

Describe the processing steps of a face recognition system describing different phases in detail and the different algorithms that are employed (e.g. localization face alignment). Provide an overview of face localization algorithm

2 Quiz

Domanda 1

Risposta corretta

Contrassegna domanda

Modifica domanda

Considering a generic processing pipeline for a gait identification system, select the correct ordering for the following processing steps:

Scegli un'alternativa:

- ☐ Upsampling and filtering, template matching, template extraction, classification.
- ☐ Template extraction, upsampling and filtering, sample normalization, classification.
- ☐ Upsampling and filtering, template extraction, classification, angle normalization.
- ☒ Upsampling and filtering, template extraction, sample normalization, classification. ✓

Your answer is correct.

La risposta corretta è:
Upsampling and filtering, template extraction, sample normalization, classification.

Domanda 2

Risposta non data

Contrassegna domanda

Modifica domanda

Considering a copy-move image tampering detection, select the **correct** statement among the following ones.

Scegli un'alternativa:

- ☐ It requires analyzing more than one image.
- ☐ It searches for blurred regions that denote the alteration.
- ☐ It is based on detecting ghosting artifacts.
- ☐ It uses local image descriptors

Your answer is incorrect.

La risposta corretta è:
It uses local image descriptors

Domanda 3

Risposta corretta

Contrassegna domanda

Modifica domanda

Concerning the Photo-Response Non-Uniformity (PRNU) equation,

$$I = g^T [I_0(1 + K) + \Theta]^T + Q$$

which among the following statements is surely **wrong**.

Scegli un'alternativa:

- ☒ Θ includes compression noise. ✓
- ☐ K is a multiplicative term
- ☐ I_0 is the noise-free image
- ☐ g is a gain factor

Your answer is correct.

La risposta corretta è:
 Θ includes compression noise.

Domanda 4

Risposta non data



Contrassegna domanda

Modifica domanda

Select the **wrong** statement concerning the major fingerprint types

Scegli un'alternativa:

- ☐ The number of singular points can be 0,1 or 2.
- ☐ A tented arch has 2 singular points.
- ☐ The core is the north-most loop-type singular point.
- ☐ Singular points can be loops or deltas.

Risposta errata.

La risposta corretta è: The number of singular points can be 0,1 or 2.

Domanda 5

Risposta non data



Contrassegna domanda

Modifica domanda

Considering the metric Frechet Inception Distance (FID) for the evaluation of the performance of GAN, select the **wrong** statement among the following ones.

Scegli un'alternativa:

- ☐ It is sensitive to some artifacts.
- ☐ It assumes a Gaussian distribution of the generated feature vectors.
- ☐ It favors detectable object, and therefore, it is not related to human evaluation.
- ☐ It can detect mode dropping.

Your answer is incorrect.

La risposta corretta è:

It favors detectable object, and therefore, it is not related to human evaluation.

Domanda 6

Risposta corretta



Contrassegna domanda

Modifica domanda

Considering a hash function that generates the digest d from a string s

$s \mapsto d(s)$

select the **correct** statement referred to the *resilience to second pre-image* property.

Scegli un'alternativa:

- ☒ Given a $d(s_1)=d_1$, finding s_2 s.t. $d(s_2)=d_1$ must be computationally-unfeasible. ✓
- ☐ Searching for a couple of strings s_1 and s_2 such that $d(s_2)=d(s_1)$ is computationally-unfeasible.
- ☐ Given a digest d , creating s s.t. $d(s)=d$ must be computationally-unfeasible.
- ☐ The length of s must be a multiple of a predefined minimum length.

Your answer is correct.

La risposta corretta è:

Given a $d(s_1)=d_1$, finding s_2 s.t. $d(s_2)=d_1$ must be computationally-unfeasible.

Domanda **7**

Risposta
corretta

Contrassegna
domanda

Modifica
domanda

Among the following list, select the strategies that can be employed by multimedia forensics to authenticate the origin of visual data (acquiring device).

Scegli un'alternativa:

- ☐ Contrast enhancement, stabilization, interlacing detection
- ☒ PRNU estimation, CFA interpolation strategy estimation, chromatic aberration estimation. ✓
- ☐ Deepfake detection, integrity verification, ghosting artifacts detection
- ☐ Sharpening, distortion correction, magnification.

Your answer is correct.

lecture 15

La risposta corretta è: PRNU estimation, CFA interpolation strategy estimation, chromatic aberration estimation.

Domanda **8**

Risposta non
data

Rimuovi
contrassegno

Modifica
domanda

What is the main role of geometric hashing in fingerprint indexing?

Scegli un'alternativa:

- ☐ Computing a matching score for each enrolled fingerprint.
- ☐ Retrieving all the triangles of a fingerprint from a hash table.
- ☐ Verifying the geometric constraints of a potential match.
- ☐ Determining the length of the longest side of a triangle formed by minutiae.

Your answer is incorrect.

La risposta corretta è:

Retrieving all the triangles of a fingerprint from a hash table.

Domanda **9**

Risposta non
data

Contrassegna
domanda

Modifica
domanda

Which of the following challenges to face recognition does **NOT** belong to the PIE set?

Scegli un'alternativa:

- ☐ Distance from the camera.
- ☐ Familiarity.
- ☐ Compression effects.
- ☐ Blurring.

Risposta errata.

La risposta corretta è:

Familiarity.

Domanda 10
Risposta non
data
Contrassegna
domanda
Modifica
domanda

Considering the equation

$$\arg \max_W \frac{|W^T S_0 W|}{|W^T S_1 W|}$$

select among the following sentences the correct one.

Scegli un'alternativa:

- ☐ The equation defines the Fisherface decomposition and S_0 is the interclass scatter matrix.
- ☐ The equation defines the Principal Component Analysis decomposition.
- ☐ The equation defines the Independent Component Analysis decomposition and S_0 is the between class scatter matrix.
- ☐ The equation defines the Linear Discriminant analysis decomposition and S_0 is the between class scatter matrix.

Risposta errata.

La risposta corretta è: The equation defines the Linear Discriminant analysis decomposition and S_0 is the between class scatter matrix.

Domanda 11
Risposta
corretta
Contrassegna
domanda
Modifica
domanda

In iris recognition, occlusion masks allow to localize ... (select the **correct** combination of elements)

Scegli un'alternativa:

- ☐ Primary specular reflection, eyelids, strands of hair.
- ☐ Pupillary boundary, eyelids, eyelashes.
- ☒ Specular reflections, eyelids, eyelashes ✓

Your answer is correct.

La risposta corretta è: Specular reflections, eyelids, eyelashes

Domanda 12
Risposta errata
Contrassegna
domanda
Modifica
domanda

Which of the following features is **not** useful to detect deepfakes?

Scegli un'alternativa:

- ☐ Blinking pattern
- ☐ Low frequency details.
- ☒ Facial hair ✗
- ☐ Glare of glasses

Your answer is incorrect.

La risposta corretta è:
Low frequency details.

Domanda **13**

Risposta
corretta



Contrassegna
domanda

Modifica
domanda

Profiling a stream of packet lengths (sniffed via Wireshark), it is possible to detect which application is run by an Android phone. 5 different SVM classifiers were obtained by training a common dataset (made of 1000 training vectors) with different configuration parameters. According to the final accuracy and the number of support vectors (#SV), select the most reliable one.

Scegli un'alternativa:

- ☐ a. #SV=10, accuracy=92%
- ☒ b. #SV=30, accuracy=97% ✓
- ☐ c. #SV=900, accuracy=99.5%
- ☐ d. #SV=100, accuracy=97%

Your answer is correct.

La risposta corretta è: #SV=30, accuracy=97%

Domanda **14**

Risposta
corretta



Contrassegna
domanda

Modifica
domanda

Among the following list, select the strategies that can be employed by multimedia forensics to authenticate the origin of visual data (acquiring device).

Scegli un'alternativa:

- ☒ PRNU estimation, CFA interpolation strategy estimation, chromatic aberration estimation. ✓
- ☐ Sharpening, distortion correction, magnification.
- ☐ Deepfake detection, integrity verification, ghosting artifacts detection
- ☐ Contrast enhancement, stabilization, interlacing detection

Your answer is correct.

lecture 15

Le risposte corrette sono: Sharpening, distortion correction, magnification., PRNU estimation, CFA interpolation strategy estimation, chromatic aberration estimation.

Domanda **15**

Risposta errata



Contrassegna
domanda

Modifica
domanda

In the integro-difference operator for iris recognition systems

$$\max_{(x_0, y_0, r)} \left| G_\sigma(r) * \frac{\partial}{\partial r} \oint_{x_0, y_0, r} \frac{I(x, y)}{2\pi} ds \right|$$

we can **surely** say that

Scegli un'alternativa:

- ☒ Gradient is computed along a circle centered at (x_0, y_0) . ✗
- ☐ Image pixel are integrated along a ray starting from (x_0, y_0) .
- ☐ Data are convolved with a Gaussian filter.
- ☐ It is used to segment out eyelids.

Risposta errata.

La risposta corretta è:

Data are convolved with a Gaussian filter.

Domanda 16

Risposta non data



Contrassegna domanda



Modifica domanda

Concerning unsupervised anomaly detection on a dataset where α is the fraction of anomalies, select the **wrong** answer among the following ones.

Scegli un'alternativa:

- ☐ Heavy tails in distributions facilitate the detection process.
- ☐ If $\alpha > 5\%$, WDAD assumption is needed.
- ☐ If α is small, a simple outlier detector is required.
- ☐ If α is large, you can fit a two components mixture model.

Your answer is incorrect.

La risposta corretta è:

Heavy tails in distributions facilitate the detection process.

Domanda 17

Risposta corretta



Contrassegna domanda



Modifica domanda

Concerning different methods to recover fairness, which of the following strategies are related to a pre-processing phase.

Scegli un'alternativa:

- ☒ Data augmentation ✓
- ☐ Domain adaptation.
- ☐ Modification of classification regions.
- ☐ Disentanglement methods.

Your answer is correct.

La risposta corretta è:

Data augmentation

Domanda 18

Risposta corretta



Contrassegna domanda



Modifica domanda

Considering the analysis of a storage disk, which of the following statement would you use to explain what the **non-indexed** space is (select the **most fitting** option)?

Scegli un'alternativa:

- ☐ It is the memory space included within a geometrical sector.
- ☒ It is a memory space which was occupied by a file that has been removed. ✓
- ☐ It is a write-protected space on the disk that can not be overwritten.
- ☐ It is the space within a sector between the end of the contained file and the end of the corresponding sector.

Your answer is correct.

La risposta corretta è:

It is a memory space which was occupied by a file that has been removed.

Domanda 19
Risposta
corretta
Contrassegna
domanda
Modifica
domanda

Concerning the figure of Digital Evidence First Responder in ISO IEC 27037/2012, select the **wrong** statement among the following ones:

Scegli un'alternativa:

- ☐ He/She checks and seizes the area containing digital devices.
- ☒ He/She presents the results of the analysis in court. ✓
- ☐ He/She avoids changing the state of device.
- ☐ He/She profiles all the persons authorized to access the area.

Risposta corretta.

La risposta corretta è:

He/She presents the results of the analysis in court.

Domanda 20
Risposta
corretta
Contrassegna
domanda
Modifica
domanda

Among the following criteria, which is **NOT** used to filter spurious minutiae in minutiae extraction?

Scegli un'alternativa:

- ☐ Minutiae that do not have an adjacent ridge on either sides.
- ☒ Minutiae that are located midway between the two nearest minutiae. ✓
- ☐ Minutiae that are close and opposite in direction.
- ☐ Too many minutiae in a small neighborhood.

Your answer is correct.

La risposta corretta è:

Minutiae that are located midway between the two nearest minutiae.

Domanda 21
Risposta non
data
Contrassegna
domanda
Modifica
domanda

Considering the isolation tree anomaly detection algorithm, which of the following statements is **NOT** correct

Scegli un'alternativa:

- ☐ In the creation of a single classification tree, threshold are chosen randomly.
- ☐ Final anomaly score depends on the expected depth
- ☐ When score $2^{-\bar{d}/r}$ is low, we have an anomaly (\bar{d} is the average depth).
- ☐ For a given tree, attribute selection is repeated until every sample in the dataset is a leaf.

Risposta errata.

Lecture 7 slides 15

La risposta corretta è:

When score $2^{-\bar{d}/r}$ is low, we have an anomaly (\bar{d} is the average depth).

Domanda **22**

Risposta errata



Contrassegna domanda

Modifica domanda

Assuming that an audio forensic analysts is processing an audio sequence and, at a certain point, he starts selecting the harmonics that are multiples of 50 Hz. Which type of analysis is he/she carrying on?

Scegli un'alternativa:

- ☐ Reducing noise to classify events
- ☐ Reverberation analysis
- ☒ Voice/speech identification ✖
- ☐ Analyzing the electrical network frequencies

Your answer is incorrect.

La risposta corretta è:

Analyzing the electrical network frequencies

Domanda **23**

Risposta errata



Contrassegna domanda

Modifica domanda

Given an audio track to analyze, select among the following steps the one which is not useful in an enhancement operation.

Scegli un'alternativa:

- ☐ Equalization
- ☐ De-reverberation
- ☒ Critical listening ✖
- ☐ Analyze frequencies around $f_0 = 50$ Hz (and multiples)

Your answer is incorrect.

La risposta corretta è:

Analyze frequencies around $f_0 = 50$ Hz (and multiples)

Domanda **24**

Risposta non data



Contrassegna domanda

Modifica domanda

Select the **correct** statement concerning the M82 algorithm:

Scegli un'alternativa:

- ☐ Initial coarse pre-alignment takes into account top 10 minutiae pairs.
- ☐ Deformation tensor is computed before matching pairs.
- ☐ It takes into account the orientation of ridges.
- ☐ A list of minutiae couples is sorted according to the matching weights.

Risposta errata.

La risposta corretta è: A list of minutiae couples is sorted according to the matching weights.

Domanda **25**
Risposta
corretta
Contrassegna
domanda
Modifica
domanda

Given the following multimedia processing strategies, select the **passive** one.

Scegli un'alternativa:

- ☒ CFA estimation ✓
- ☐ Encryption
- ☐ Steganography
- ☐ Watermarking

Your answer is correct.

La risposta corretta è:
CFA estimation

Domanda **26**
Risposta non
data
Contrassegna
domanda
Modifica
domanda

Concerning facial landmark extraction algorithms, select the **wrong** statement among the following ones.

Scegli un'alternativa:

- ☐ Each regression tree uses different subsets of pixels.
- ☐ Kazemi and Sullivan's approach uses an ensemble of regression trees.
- ☐ It starts with a fixed template of points which are fitted to the face.
- ☐ Kazemi and Sullivan's solution uses 15 points instead of 68 used by dlib.

Risposta errata.

La risposta corretta è:
Kazemi and Sullivan's solution uses 15 points instead of 68 used by dlib.

Your answer is correct.

La risposta corretta è:
 α is the gradient and changes for each X_i .

Domanda **28**
Risposta
corretta
Contrassegna
domanda
Modifica
domanda

Among the following list, select the strategies that can be employed by multimedia forensics to enhance the quality of visual data.

Scegli un'alternativa:

- ☐ Deepfake detection, integrity verification, ghosting artifacts detection
- ☐ Watermarking, stabilization, image phylogeny
- ☐ PRNU estimation, CFA interpolation strategy estimation, chromatic aberration estimation.
- ☒ Sharpening, distortion correction, magnification. ✓

Your answer is correct.

slides 6-7 lecture 13

La risposta corretta è: Sharpening, distortion correction, magnification.

Domanda **29**

Risposta errata

🚩 Rimuovi
contrassegno

⚙ Modifica
domanda

Considering a Fast Sign Gradient Method (FGSM) to perform an targeted attack on an image classifier (e.g. converting the classification of the image of a labrador into a komodo dragon - see lab session nr. 2), an adversarial image is generated by the equation

$$adv_x = image + \epsilon \cdot perturbation.$$

It is possible to state that ... (select the **correct** statement)

Scegli un'alternativa:

- ☐ The effectiveness of the attack (confidence on a wrong classification) increases as the variable ϵ decreases.
- ☐ The strategy is more effective if more iterations are performed.
- ☒ The distortion increases as the variable ϵ increases. ✖
- ☐ The effectiveness of the attack does not depend on the target final class.

Risposta errata.

La risposta corretta è:

The strategy is more effective if more iterations are performed.

Domanda **30**

Risposta errata

🚩 Contrassegna
domanda

⚙ Modifica
domanda

Which feature set is useful to compensate face deformation in face recognition?

Scegli un'alternativa:

- ☐ Level 3 features
- ☐ Level 2 features
- ☒ Level 1 features ✖

Your answer is incorrect.

La risposta corretta è:

Level 2 features

Domanda **31**

Risposta
corretta

🚩 Rimuovi
contrassegno

⚙ Modifica
domanda

Consider the following anomaly example

"A packet loss which is not expected."

How would you define it?

Scegli un'alternativa:

- ☐ Contextual anomaly
- ☒ Point anomaly ✔
- ☐ Collective anomaly

Your answer is correct.

La risposta corretta è:

Point anomaly

Domanda **32**
Risposta errata
Contrassegna domanda
Modifica domanda

Considering the equations for a spread-spectrum watermarking

$$w[n_1, n_2] = \sum_{i=0}^{M-1} b_i \cdot p_i[n_1, n_2]$$

select the **wrong** statement among the following ones.

Scegli un'alternativa:

- ☐ $p_i[n_1, n_2]$ is a zero-mean pulse.
- ☐ The perceptual mask is embedded inside the pulse $p_i[n_1, n_2]$.
- ☒ The number of tiles is different from the number of embedded bits. ✖
- ☐ $p_i[n_1, n_2]$ depends on the message to be embedded.

Your answer is incorrect.

La risposta corretta è:

$p_i[n_1, n_2]$ depends on the message to be embedded.

Domanda **33**
Risposta corretta
Contrassegna domanda
Modifica domanda

What is the purpose of face alignment/normalization in facial recognition systems?

Scegli un'alternativa:

- ☐ To capture facial landmarks for emotion classification.
- ☐ To ensure consistent lighting conditions for accurate recognition.
- ☒ To detect and align faces with different viewpoints and expressions. ✔
- ☐ To improve the speed of face recognition.

Your answer is correct.

La risposta corretta è:

To detect and align faces with different viewpoints and expressions.

Domanda **34**
Risposta corretta
Contrassegna domanda
Modifica domanda

Considering the ISO/IEC JTC1 SC37 standardization activity and the related work groups, select the **correct** statement among the following ones.

Scegli un'alternativa:

- ☐ The standardization activity only aims at the definition of a common data exchange format.
- ☐ Hand geometry is not considered since it can be related to soft biometrics.
- ☐ The Biometric Data Interchange Format (ISO/IEC 19794) also deals with non-technical issues like presentation.
- ☒ It can be divided into 6 different work groups. ✔

Your answer is correct.

La risposta corretta è:

It can be divided into 6 different work groups.

Domanda **35**
Risposta errata
Contrassegna domanda
Modifica domanda

Considering a spread-spectrum watermarking algorithm, select the **correct** statement on perceptual mask among the following ones.

Scegli un'alternativa:

- ☐ The perceptual mask improves the quality of the original image.
- ☐ The perceptual mask selects the pixels where just noticeable distortion is low.
- ☐ The perceptual mask embeds the information in points where image is mostly smooth.
- ☒ The perceptual mask is dependent on the information to be embedded. ✖

Your answer is incorrect.

La risposta corretta è: The perceptual mask selects the pixels where just noticeable distortion is low.

Domanda **36**
Risposta corretta
Contrassegna domanda
Modifica domanda

Concerning a forensic technical report to be presented in court, which of the following elements should **not be included** in the initial summary?

Scegli un'alternativa:

- ☒ The CV of the analyst. ✔
- ☐ The conclusions in brief.
- ☐ The summary of the activities.
- ☐ The objectives of the report.

Your answer is correct.

La risposta corretta è:
The CV of the analyst. ✔

Domanda **37**
Risposta corretta
Contrassegna domanda
Modifica domanda

In adversarial machine learning, which among the following definitions proves to be more suitable for an attack algorithm that aims at forcing the classifier into misclassifying one specific sample into generically wrong class without knowing the detection algorithm.

Scegli un'alternativa:

- ☐ Universal untargeted whitebox attack.
- ☐ Individual targeted whitebox attack.
- ☒ Individual untargeted blackbox attack. ✔
- ☐ Universal targeted blackbox attack.

Risposta corretta.

slide 15 lecture 10

La risposta corretta è: Individual untargeted blackbox attack.

Domanda **38**
Risposta errata
Rimuovi contrassegno
Modifica domanda

Given a digital image, estimating the CFA interpolation strategy adopted on that image allows ...

Scegli un'alternativa:

- ☐ ... to associate the image to a specific Bayer pattern.
- ☐ ... to associate the image to a camera model only if it has not been compressed.
- ☐ ... to associate the image to a specific acquisition time.
- ☒ ... to associate the image to a specific camera. ✖

Your answer is incorrect.

La risposta corretta è:

... to associate the image to a specific Bayer pattern.

Domanda **39**
Risposta errata
Contrassegna domanda
Modifica domanda

Among the following, select the **wrong** statement concerning Network-based IDS.

Scegli un'alternativa:

- ☐ They require storage and fast processing capabilities.
- ☐ They provide a network-wide overview of the attack
- ☐ They can detect out-of-band attacks.
- ☒ They are not robust to fragmentation and TTL attack. ✖

Your answer is incorrect.

La risposta corretta è: They can detect out-of-band attacks.

Domanda **40**
Risposta corretta
Contrassegna domanda
Modifica domanda

Given two PRNU patterns (one estimate from an image and the other from a set of 20 flat field pictures taken with the suspect camera), select the **wrong** statement among the following ones.

Scegli un'alternativa:

- ☐ Peak-to-Correlation Energy is less noisy than Normalized Cross-Correlation.
- ☒ Flat field images need to be very dark. ✔
- ☐ Peak-to-Correlation Energy is more computationally demanding than Normalized Cross-Correlation.
- ☐ If the image has not been taken with the suspected camera, PCE or NCC values are more or less the same for different analysis windows.

Your answer is correct.

La risposta corretta è: Flat field images need to be very dark.

Extra questions
some are similar but change Correct to Wrong or vice versa:

Considering the analysis of a storage disk, which of the following statement would you use to explain what the **slack space** is (select the **most fitting** option)?

Scegli un'alternativa:

- ☒ It is the space within a sector between the end of the contained file and the end of the corresponding sector. ✓
- ☐ It is the memory space included within a geometrical sector.
- ☐ It is a non-allocated memory space that can be overwritten by a file.
- ☐ It is a memory space which is not indexed anymore since the table of indexes has been lost with file removal.

Your answer is correct.

La risposta corretta è:

It is the space within a sector between the end of the contained file and the end of the corresponding sector.

Select the **wrong** statement concerning the M82 algorithm:

Scegli un'alternativa:

- ☐ A weight is assigned to each matching pair.
- ☐ Small deformation can be compensated by a tensor transformation.
- ☒ A coarse pre-alignment is performed using the Top 2 matching pair. ✓
- ☐ The list of matching minutiae pairs is ordered according to their weights.

Risposta corretta.

La risposta corretta è: A coarse pre-alignment is performed using the Top 2 matching pair.

In adversarial machine learning, which among the following definitions proves to be more suitable for an attack algorithm that aims at forcing the classifier into misclassifying all the samples into generically wrong class without knowing the detection algorithm.

Scegli un'alternativa:

- ☐ Universal targeted blackbox attack.
- ☐ Universal untargeted whitebox attack.
- ☐ Individual targeted blackbox attack.
- ☒ Universal untargeted blackbox attack. ✓

Risposta corretta.

slide 15 lecture 10

La risposta corretta è: Universal untargeted blackbox attack.

Considering a hash function that generates the digest **d** from a string **s**

$s \mapsto d(s)$

select the **correct** statement referred to the *resilience to collision* property.

Scegli un'alternativa:

- ☒ Searching for a couple of strings **s1** and **s2** such that **d(s2)=d(s1)** is computationally-unfeasible. ✓
- ☐ Given a **d(s1)=d1**, finding **s2** s.t. **d(s2)=d1** must be computationally-unfeasible.
- ☐ The length of **s** must be a multiple of a predefined minimum length.
- ☐ Given a digest **d**, creating **s** s.t. **d(s)=d** must be computationally-unfeasible.

Your answer is correct.

La risposta corretta è:

Searching for a couple of strings **s1** and **s2** such that **d(s2)=d(s1)** is computationally-unfeasible.

Given two PRNU patterns (one estimate from an image and the other from a set of 20 flat field pictures taken with the suspect camera), select the **correct** statement among the following ones.

Scegli un'alternativa:

- ☐ Peak-to-Correlation Energy is less computationally demanding than Normalized Cross-Correlation.
- ☐ Peak-to-Correlation Energy is more noisy than Normalized Cross-Correlation.
- ☐ Flat field images need to be very dark.
- ☐ If the image has not been taken with the suspected camera, PCE or NCC values are more or less the same for different analysis windows.

Your answer is incorrect.

La risposta corretta è: If the image has not been taken with the suspected camera, PCE or NCC values are more or less the same for different analysis windows.

Concerning the figure of Digital Evidence First Responder in ISO IEC 27037/2012, select the **wrong** statement among the following ones:

Scegli un'alternativa:

- ☐ He/She profiles all the persons authorized to access the area.
- ☐ He/She identifies notes, diaries, post-it, manuals.
- ☒ He/She can be someone who is not in charge of the investigation. ✓
- ☐ He/She checks and seizes the area containing digital devices.

Risposta corretta.

La risposta corretta è:

He/She can be someone who is not in charge of the investigation.