REPORT MACHINE LEARNING AND PATTERN RECOGNITION

Fingerprint spoofing detection

Alessia Intini
s309895
Politecnico di Torino
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Contents

1 Dataset Analysis

The project task consists of a binary classification problem. The goal is to perform fingerprint spoofing detection, i.e. to identify genuine vs counterfeit fingerprint images. The dataset consists of labeled samples corresponding to the genuine (True, label 1) class and the fake (False, label 0) class. The samples are computed by a feature extractor that summarizes high-level characteristics of a fingerprint image. The data is 6-dimensional.

1.1 Training and evaluation sets

1.2 Features analysis

LAB2
i dati erano già centrati ma è stata applicata una normalizzazione che però è impercettibile
Domande

- Feature 1 and feature 2
  Yes the class overlap feature 1 in range x [-2.665,2.237], y[0,0.315] and for feature 2 in range x [-2.670,3.000] and y[0,0.325].
  The mean are similar in two feature, one is 0.00170711 and for feature two is 0.00503903.
  Yes the variance is similar 1.00134304, 0.9983527.
  Modes of hist in feature 1 for false value is y 0.541 for x in [-0.213,0.276], while for feature 2 is also for false value y 0.516, x [-0.402,0.165]

- Feature 3 and feature 4
  Yes the class overlap feature 3 in range x [-2.009,1.190], y[0,0.309] and for feature 4 in range x [-1.684,1.816] and y[0,0.371].
  The mean are similar in two feature, one is -0.00560753 and for feature two is 0.00109537.
  Yes the variance is similar 1.0024818 , 0.99029389.
  Modes of hist in feature 3 for false value is y 0.517 for x in [-1.063,-0.568], while for feature 4 is also for false value y 0.525, x [0.290,0.783]

- Feature 5 and feature 6
  Yes the class overlap feature 5 in range x [-2.066,2.004], y[0,0.282] and for feature 6 in range x [-2.000,2.180] and y[0,0.301].
  The mean are similar in two feature, one is -0.00700025 and for feature two is 0.00910515.
  Yes the variance is similar 1.00119747 , 0.99722374.
  Modes of hist in feature 5 for true value is y 0.572 for x in [-1.211,-0.783], while for feature also for true value 6 y 0.553, x [-1.273,-0.817]

1.3 Citation

This is a citation[**?**].