BBFor2 Research Projects:

WP3 – Project 9: Latent finger and palm print recognition

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Motivation (I)

- Better understanding of latent finger and palm print automatic recognition in **REALISTIC FORENSIC CONDITIONS**: Performance and statistical behaviour (→ LRs!!)

Towards a better understanding of the performance of latent fingerprint recognition in realistic forensic conditions

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Research collaboration with Spanish Guardia Civil: Access to commercial AFIS and large DBs!!

![Figure 1. Three types of fingerprint images: a) Rolled fingerprint, b) Plain fingerprint, c) Latent fingerprint. (Extracted from [1])](image)

![Figure 3. CMC curves for rolled, plain and latent queries.](image)
Motivation (II)

- Improvement of tools for processing and recognition of finger and palm prints
  - Experience in processing/recognition of plain fingerprints:

  ... BUT considering **latent data** → New challenges!!
**Motivation (III)**


Fig. 2. Features in a latent fingerprint. (a) Grayscale image, (b) minutiae, (c) singular points (cores), (d) ridge quality map (darkness indicates high quality level), (e) ridge flow map, (f) ridge wavelength map, (g) skeletonized image, (h) dots and incipient ridges.
Research Plan

1. Survey of recent advances in automatic finger/palm processing and recognition (multilevel: level 1 to level 3)

2. Better understanding the forensic scenario

3. Development of processing/recognition tools for latent finger/palm prints:
   - Quality assessment and enhancement
   - Feature extraction (multilevel)
   - Matching
   - Indexing

4. Transparent performance evaluation

EXPECTED STARTING DATE: Oct. to Dec 2010