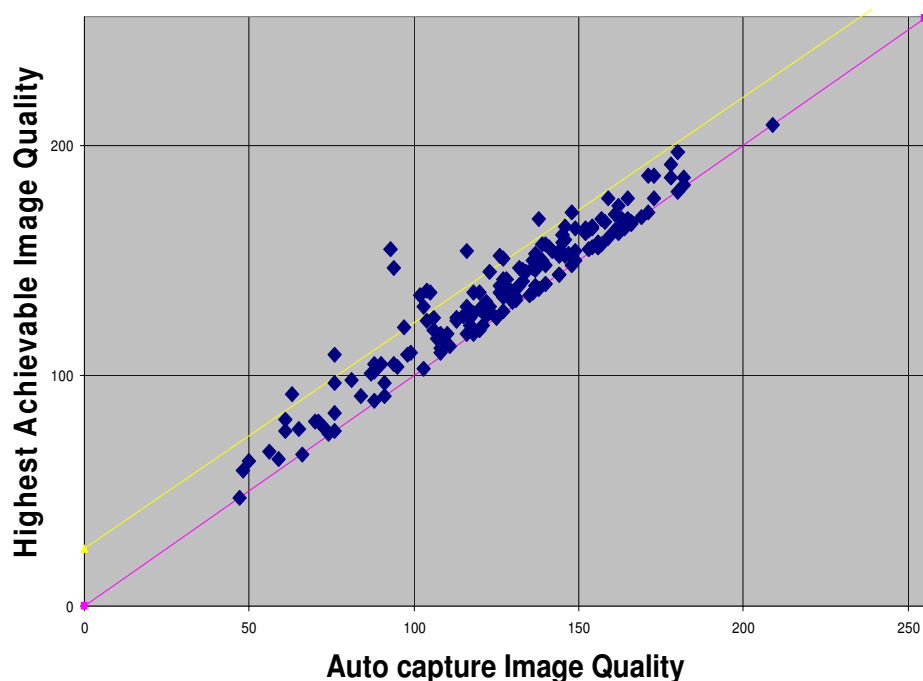
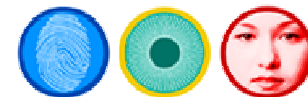


Quality as a Selection Tool: the Challenge of Auto Capture for Slaps Scanners



- X axis is quality of the image chosen by the auto capture.
- Y axis is the best reachable quality in the sequence (chose a posteriori)

- **Slaps segmentation and quality assessment on each finger cannot be done in real time (30 frames/sec)**
 - Need to have a simplified, real time quality assessment to trigger the acquisition
- **Real time quality assessment and a posteriori quality assessment concur (less than 10% difference compared to the optimal value)**



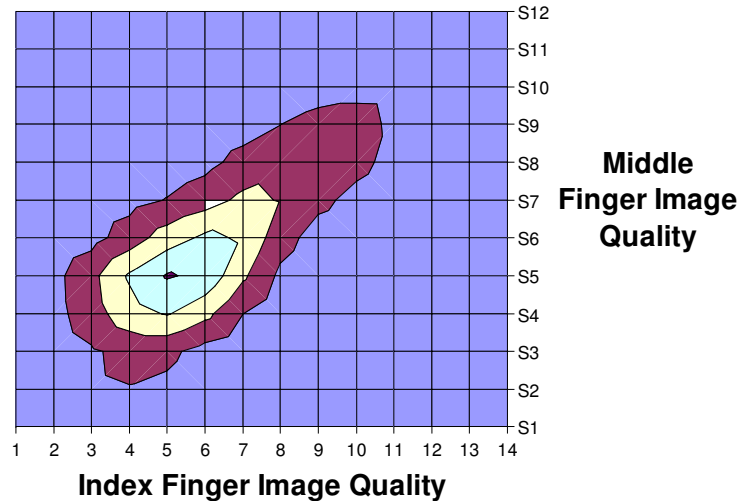
Quality Measure as Tool for Analyses

Multi Biometrics - Fusion

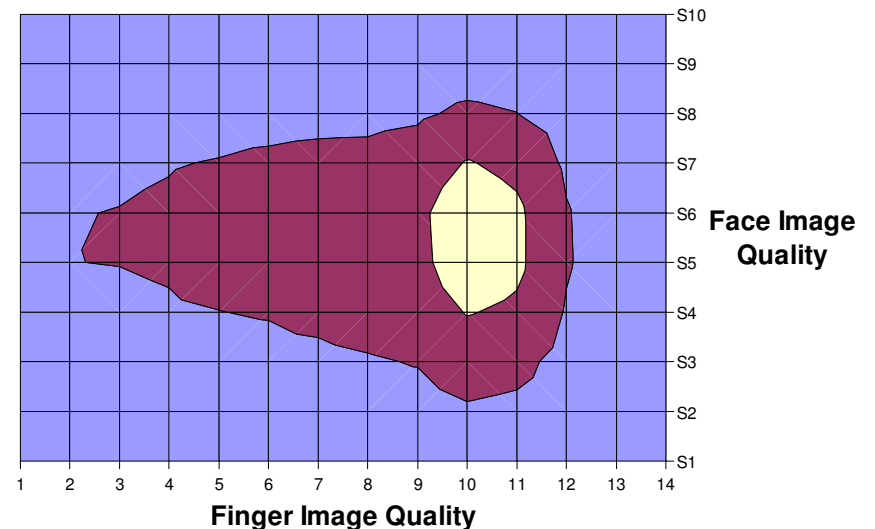


Correlation Between Biometrics

Correlation of Finger Image Quality of Index And Middle Fingers (Right Hand)



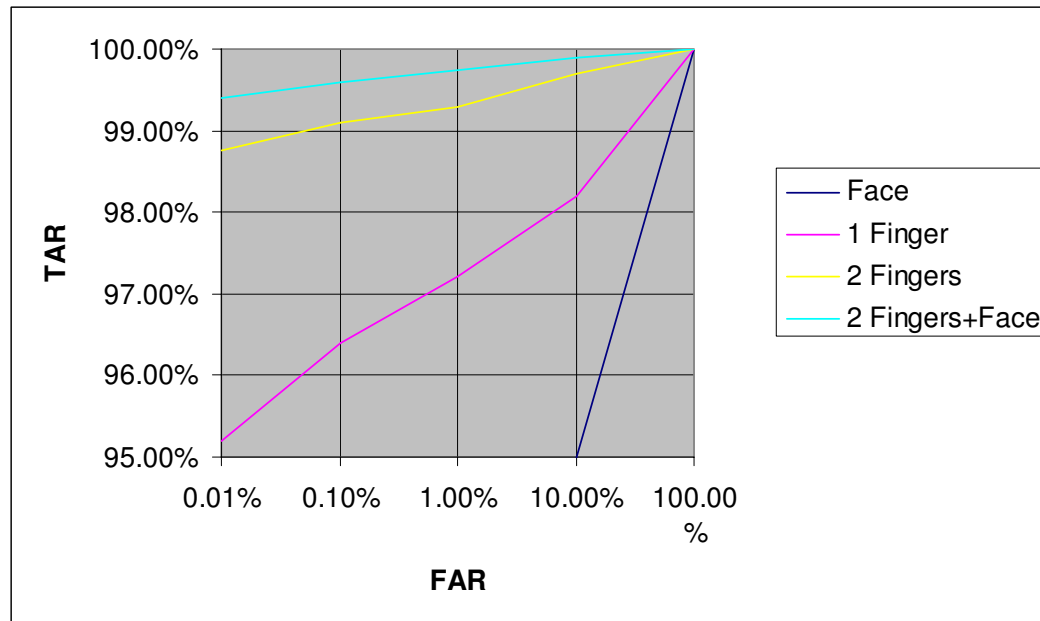
Correlation Face Image Quality / Finger Image Quality



- **Qualities of fingers of same person are correlated, especially on the same hand**
- **Hardly any correlation between quality of finger and face**



Correlation Between Different Biometrics: Impact on Fusion



- On this operational database, performance of single biometrics (face alone or one finger alone) was poor.
- The main reason is bad procedures and lack of training of operators

- **Fusion of two fingerprints improves performance despite the fact that the two fingers are correlated, because fingerprint is a strong biometrics**
- **Fusion of fingerprints and face improves performance despite the fact that face is a weaker biometrics, because of the non correlation**



Conclusion

- **Effectiveness to predict matcher performance is a great definition for quality**
- **With this definition, quality is more than just a measure of the quality of the biometrics or of the sensor used**
 - *in particular, user/sensor interaction is critical*
- **NFIQ is a good predictor of Sagem matcher performance; however, Sagem quality measure is more efficient**
- **Both quality measures are interesting**
 - *NFIQ as an generic performance predictor*
 - *Proprietary (Sagem) measurement is preferred when Sagem matcher is used*
 - *It makes sense to keep both, as planned for the ANSI/NIST update*
- **Information on reproducibility should be added**
 - *Especially true with smaller sensor (e.g. capacitive) and non habituated users*
- **It would be nice to have the same for face and iris**
 - *Proprietary measures exist*
 - *Global measure validated on several vendors would be useful*

