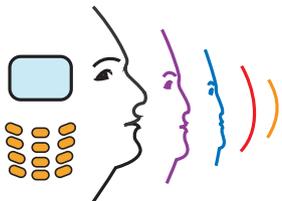# MOBIO: Mobile Biometry
Idiap Contribution to WP4

Sébastien Marcel

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Idiap research institute
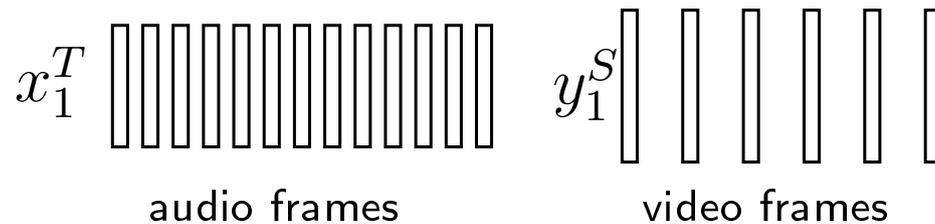*Martigny, Switzerland*

`http://www.idiap.ch`

WP4 – Bi-Modal Authentication and Model Adaptation

- Bi-Modal Authentication:
  - Baseline (D4.1/D4.2 at m14/m18): simple late score fusion technique with a linear classifier
  - Advanced (D4.3/D4.4 at m24/m30): ...

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   * dealing with asynchronous streams of data

$$x_1^T \; \rVert\rVert\rVert\rVert\rVert\rVert\rVert\rVert\rVert\rVert\rVert\rVert\rVert \qquad y_1^S \; \rVert \; \rVert \; \rVert \; \rVert \; \rVert$$

audio frames   video frames

    * x_1^T is the sequence of audio frame features of length T ($x_t \in^m$)
    * y_1^S is the sequence of video frame features of length S ($y_s \in^n$)
    * audio and video frame features:
      · are not synchronized,
      · doesn't have the same length (here we assume $S < T$),
      · doesn't have the same frame size.

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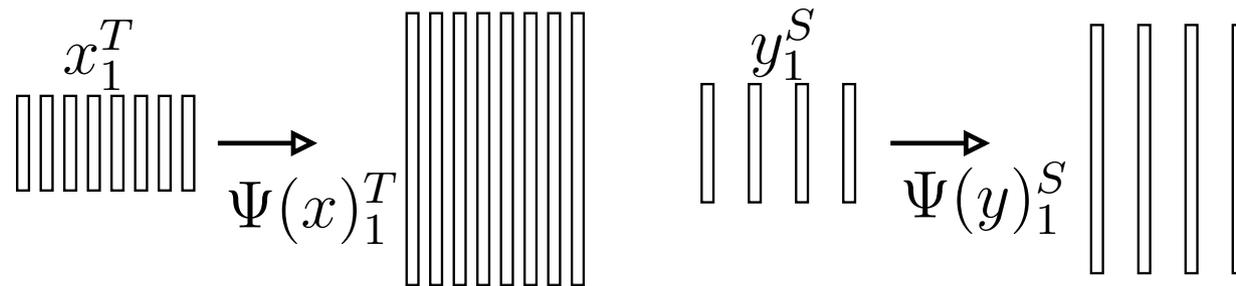

- · using the polynomial expansion technique proposed by Campbell for speaker verification,
- · streams would be merged in a very high dimensional space:
  $\hat{x} = \frac{1}{T} \sum_1^T \Psi^{audio}(x)_t$ and $\hat{y} = \frac{1}{S} \sum_1^S \Psi^{video}(x)_s$ where $\Psi^{audio}(x)_1^T$ and $\Psi^{video}(y)_1^S$ are the polynomial expansion sequences of audio/video frame features x_1^T and y_1^S,

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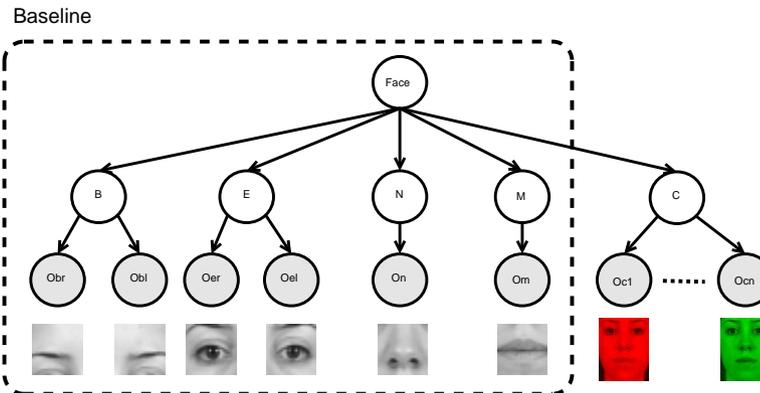
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- Model Adaptation:
  - Baseline (D4.5/D4.6 at m16/m20): systematic MAP adaptation of accepted samples
  - Advanced (D4.7/D4.8 at m26/m30): ?