Mobio Planning for Deliverables
D4.3&4.4 (advanced fusion) and D4.7 (advanced adaptive systems)

Coordinated by UNIS/IDIAP

CVSSP

Centre for Vision, Speech and Signal Processing (CVSSP),
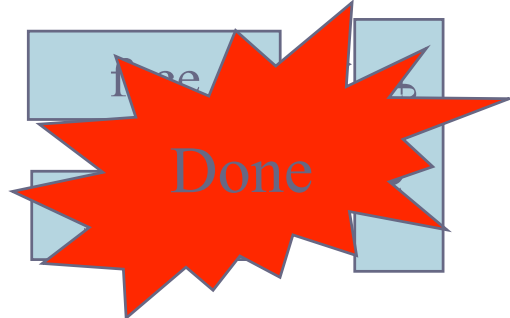School of Electronics and Physical Sciences,
University of Surrey, U.K.

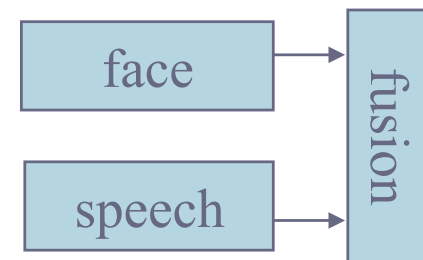# Overview

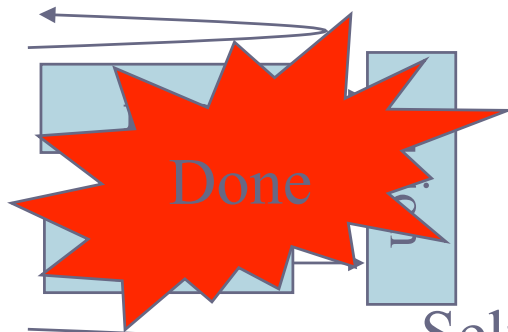| Baseline non-adaptive fusion	Advanced non-adaptive fusion
Baseline fusion	**Advanced fusion**

Baseline fusion — face, speech — **Done**

D4.1 (m15) & 4.2 (m16)

Advanced fusion:
face → fusion
speech → fusion

D4.3 (m24) & 4.4 (m30)

Baseline adaptive fusion

Done

Self-train

D4.5 (m17) & 4.6 (m20)

Advanced adaptive fusion
(co-training)

face → fusion
speech → fusion

co-train

D4.7 (m26) & 4.8 (m30)

® Dr. Norman Poh except where acknowledged
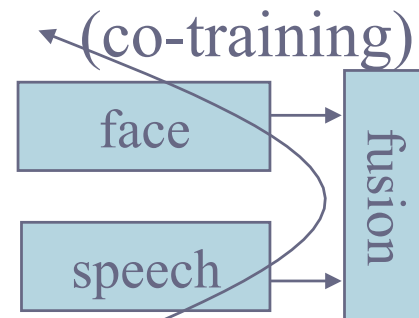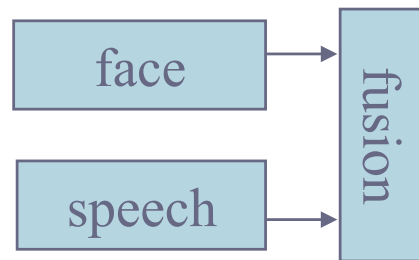
Advanced fusion system (D4.3)

Involved: UNIS, IDIAP

D4.3 Advanced fusion system

- Goal: To deliver a bi-modal fusion mechanism given the existing face & speech systems within the planned milestone (schedule)

- Principles:
  - A spectrum of fusion mechanisms are possible (as we shall see in the next slide), but we shall deliver what is believed to be sensible
  - This means systematic experimentation may not be possible

- Pre-requisites:
  - Face and speech systems available
  - Agreed output score format (Mobio format)

- Expected results:
  - Fusion systems that are better than the baseline face and speech systems (m24)
  - D4.4 report (m30)

Some Decisions to Make

- Database to use:
  - MOBIO phase I OR BANCA P protocol?
    - ANS:

- System to use:
  - Baseline (face&speech) systems OR advanced systems
    - ANS:
  - Which face system: IDIAP or UNIS?
    - ANS: Need not be the same for IDIAP or UNIS
  - Which speech system: LIA or BUT?
    - ANS: BUT (as has been used so far in WP4)

Action points

- D4.3: systems to submit
  - IDIAP
    - Feature-based fusion?
    - Face baseline to use: IDIAP
    - Speech baseline to use: LIA
  - UNIS
    - Score-level fusion with T-norm and other methods
    - Frame-level fusion
    - Face baseline to use: UNIS-advanced
    - Speech baseline: LIA

Planning for D4.7
(Advanced adaptive system)

- What:
  - Task: Investigate co-training in fusion
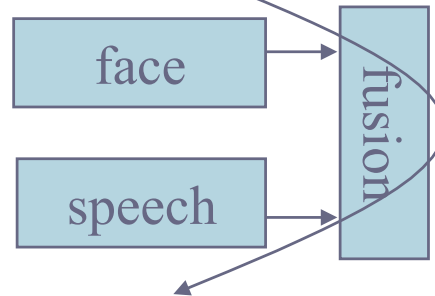 - Deliverables: adaptive fusion system via co-training
- Who: UNIS + IDIAP (joint-force)
  - since this is a very difficult subject! (See next slide)
- When: m26

Advanced adaptive system (D4.7)

How:

- Write a wrapper script (say in Perl) to parse a complete protocol file

- The script will then call an individual face or speech to train (or retrain), or test in tandem (once face, once speech for each video query file)

    - This is done by dynamically generating the Mobio format prior to calling the programs (in shell)

- A fusion module (also written in Perl) will determine whether to update the face or speech system)

- The next video query file is processed

Some Decisions to Make

- Database to use:
  - MOBIO phase I OR BANCA P protocol?
    - ANS:

- System to use:
  - Baseline (face&speech) systems OR advanced systems
    - ANS:
  - Which face system: IDIAP or UNIS?
    - ANS: IDIAP uses IDIAP's face; UNIS uses UNIS's face system
  - Which speech system: LIA or BUT?
    - ANS: LIA(UAPV)

More Decisions to Make

- What are the *possible* baseline (fusion) system?
  - Non-adaptive fusion system (D4.1)
  - T-normalized face&speech systems + fusion (UNIS's D4.3)
  - Score-level adaptive system (D4.5)
  - And of course the supervised-adaptive system (D4.5) + fusion

- May not be possible to try all configurations (keeping all the baseline systems to be the same; although this is desirable), but use whatever is available...

Some Practical Requirements

- Systems run out-of-the-box
  - Is this the case for LIA's speech system?
  - OK for IDIAP's face system
- Clear user documentation
  - Is this the case for LIA's speech system?
  - OK for IDIAP's face system

D4.8 Report on the advanced adaptive systems – similar to D4.4

1. The state-of-the-art on adaptive score-level fusion

2. Description of different adaptive techniques

3. Brief description of baseline systems

   - Face & Speech experts

4. Experimental protocols

5. Performance Evaluation

6. Conclusions