Goals and Structure of IM2-III and Beyond

Prof. Hervé Bourlard
Idiap Research Institute and EPFL
IM2 Director

IM2 Summer Institute
Chavanne-de-Bogis
August 31– September 2, 2009

iM
INTERACTIVE
MULTIMODAL
INFORMATION
MANAGEMENT

IM2 Phase I (2002-2005)

- Initiated the IM2 common vision:
  - Human-to-human interaction in multimodal meeting recordings, and indexing and retrieval of relevant multimedia information
- Developed the required hardware:
  - Instrumented meeting rooms at Idiap and the University of Fribourg), software infrastructure, etc
  - Now available and used in multiple site in EU and US
- Collected and annotated a large common multimodal corpus:
  - Quite "unique" in size and (hierarchical) levels of annotation
  - Now used by multiple EU and US research institutions, include NIST as part of international evaluation campaigns
- Fundament research:
  - On this basis, we initiated and performed fundamental research in mono-modal and multimodal processing, encouraging the IM2 partners to test their research on the IM2 corpus, while adapting their software to the IM2 vision.

IM
INTERACTIVE
MULTIMODAL
INFORMATION
MANAGEMENT

IM2 Phase II (2006-2009)

- Consolidation the IM2 research and development efforts on our common vision
  - IM2 involved in many EU and US projects related to IM2
  - IM2 involved in numerous evaluation campaigns
  - Resulting in large amounts of high quality publications

- Increased emphasis on multimodal processing, system integration, HCI, and system evaluation

- Development of the "Hub, allowing easy integration of multiple modalities, software tools, and applications

- IM2 was enriched with a flexible user interface development tool (JFerret)

- Significant structural impact

IM2 Phase III (2010-2013): Criteria

Development of the workplan (and resulting IPs) for IM2-III based on several criteria:

- Current status of IM2:
  - Scientific achievements, active collaboration, and structural impact (current and future)
- Reassessment of future research directions
  - More emphasis on multimodality, user-centric design and evaluations
- Encourage collaboration and integration
  - Focus on projects already involving multiple partners and/or requiring joint research and integration efforts
- Community building
  - Keep building a lasting IM2 community

IM2
INTERACTIVE
MULTIMODAL
INFORMATION
MANAGEMENT

IM2 Phase III (2010-2013): Targets

- Consolidation of most of the IM2 activities in one single IP to further foster collaboration and focus **(IP1)**

- More emphasis on human-centered design and evaluation **(IP2)**:
  - Testing generalization properties of IM2 results (IP1) on different application domains
  - Developing more user-centric applications and evaluation protocols (required new partners)

- Extend fundamental research in one of the newest, but most promizing, (longer-term) outcomes of IM2-II **(IP3)**:
  - Social signal processing (in relation with EU SSPNet and PetaMedia Networks of Excellence)

IM2 Phase III – Transition Management (1)

- Long and fully transparent process, which involved the IM2 TC, SC and SAB, taking into account the constraints presented in the previous slides

- First suggestions came from the joint IM2 TC and SC meeting, held in UniFr on 3 June 2008:
  - Multimodal research and integration, strictly along the IM2 vision.
  - More emphasis on structural impact activities,
  - Integration of new professors, while creating incentive towards community building and retention of all IM2 partners, even without direct IM2 funding

- Additional work through numerous email exchanges and face-to-face meetings

iM INTERACTIVE MULTIMODAL INFORMATION MANAGEMENT

IM2 Phase III – Transition Management (2)

- Preliminary version of the new IM2-III structure was presented and discussed again during the TC meeting (IM2 Summer School, Riederalp, September 3, 2008) .

- Minutes of that TC meeting were shared and discussed again with the Steering Committee

- The scientific and management structure was unanimously approved by TC+SC

- Drafts of IM2 reports and IM2-III pre-proposal were then discussed during the last SAB meeting (Utrech, 10 September 2008), resulting in further improvements

IM
INTERACTIVE
MULTIMODAL
INFORMATION
MANAGEMENT

IM2 Phase III – Discontinued and new activities

- **Discontinued activities:**
  - IM2.BMI: creation of a new EPFL Chair in BCI with its own funding, to guarantee further developments
  - University of Bern: Activities in handwriting have been discontinued given
    - the availability of an IM2 state-of-the-art system, which can be used if necessary (and is being extended through a Eureka project)
    - the expected retirement of Prof. Horst Bunke
      - Funding of the last IM2 PhD student will not be discontinued before successful completion of his PhD
  - All activities that would not have fitted perfectly with the new agreed structure. A mechanism has already been set up in IM2-II to encourage people to submit regular SNSF projects, with support letters from IM2.

- **New activities:**
  - Human centered design and evaluation
  - Social signal processing (more emphasis)

FN·NF
FONDS NATIONAL SUISSE
SCHWEIZERISCHER NATIONALFONDS
FONDO NAZIONALE SVIZZERO
SWISS NATIONAL SCIENCE FOUNDATION

IM
INTERACTIVE
MULTIMODAL
INFORMATION
MANAGEMENT

IM2 Phase III – R&D Topics

Management and other activities

- Knowledge and Technology Transfer
- Education
- Exchange programs
- Advancement of Women
- Community Building

IP1. Integrated Multimodal Processing

- Core multimodal technologies geared towards integration into end-to-end applications
- Multimodal processing of meetings and other data
- Meeting browsers and assistants
- Evaluation of integrative applications

IP2. Human Centered Design and Evaluation

- New educational application(s) based on IM2 technologies
- Exploitation of multimodal research
- Ergonomics, usability, and user studies

IP3. Social Signal Processing

- Analysis of social behavior through non-verbal communication
- Vocal behavior, gestures, other cues
- *Relations* to SSPNet EU networks of excellence, and to Affective Sciences NCCR

FNS·NF
FONDS NATIONAL SUISSE
SCHWEIZERISCHER NATIONALFONDS
FONDO NAZIONALE SVIZZERO
SWISS NATIONAL SCIENCE FOUNDATION

IM2 Summer Institute, Chavannes-de-Bogis, August 31-September 2, 2009   Slide   9

iM
INTERACTIVE
MULTIMODAL
INFORMATION
MANAGEMENT

IM2 Phase III – Partners

Management and other activities

- Idiap: **Prof. H. Bourlard** (Director)
- EPFL: **Prof. T. Ebrahimi** (Deputy Director)
- IP Heads
- IP Deputy Heads
- Steering Committee Members

IP1. Integrated Multimodal Processing

- EPFL: **Prof. A. Billard** (IP Head), Prof. J.P. Thiran, Prof. T. Ebrahimi
- UniGe: Prof. T. Pun, **Dr. S. Marchand-Maillet** (Deputy IP Head)
- Idiap: Senior researchers in speech, vision, machine learning, interfaces and evaluation
- UniFr: Prof. R. Ingold, Dr. D. Lalanne

IP2. Human Centered Design and Evaluation

- UniFr: Prof. R. Ingold, **Dr. D. Lalanne** (IP Head), Prof. J. Sauer (*new in IM2*)
- Idiap: **Dr. A. Popescu-Belis** (Deputy IP Head)
- EPFL: Prof. P. Dillenbourg (*new in IM2*)

IP3. Social Signal Processing

- Idiap: **Dr. A. Vinciarelli** (IP Head)
- EPFL: **Dr. F. Dufaux** (Deputy IP Head, *new in IM2*),
- ETHZ: Prof. L. Van Gool, Prof. V. Ferrari (*new in IM2*)
- Others

iM
INTERACTIVE
MULTIMODAL
INFORMATION
MANAGEMENT

IM2 Phase III – Management Structure

- **IM2 Director and Deputy Director**
  - Same as in Phase 2.
- **IM2 General Assembly (GA)**
  - Replaces/integrates all the previous IP-level TCs
  - Includes (selected) senior researchers from all participating institutions
  - Takes over IM2-level and IP-level decisions.
  - Meets at least every two months (as IM2-II TC)
- **IM2 Steering Committee**
  - Same as in Phase 2
  - Oversees the GA activities
  - Invited to attend all GA meeting
  - Will receive minutes of all the GA meetings for their information and possible comments.
- **IM2 Executive Board**
  - Includes the directors and the 3 IP heads
  - Meet at least every two months
  - Makes operational decisions, submitted for approval to the GA

IM2 Phase III – Budget (1)

- IP1/IP2 in a proportion of 2/3 - 1/3

- IP3 at 15% of Phase 2 budget

- Minimum budget to cover newcomers, like new professors (e.g., recently approved joint EPFL/Idiap professor tenure-track positions).

- For the new partners: Funding for one PhD position .

- For former partners still in IM2-III: Budget reduction proportional to the global budget reduction foreseen in IM2-Phase 3, with an extra budget reduction to Idiap (mainly to cover the newcomers).

- After many discussions, and considering different scenarios, it was finally agreed to work on the basis of uniform funding over the last four years of IM2

IM2 Phase III – Budget (2)

Management

- 1'320k CHF

IP1. Integrated Multimodal Processing

- EPFL: 780k CHF
- Idiap: 1'040k CHF
- UniGe: 480k CHF
- UniFr: 120k CHF

IP2. Human Centered Design

   and Evaluation

- UniFr:400k CHF
- EPFL: 260k CHF
- Idiap: 360k CHF

IP3. Social Signal Processing

- Idiap: 340k CHF
- ETHZ: 200k CHF
- Others: 60k CHF

IM2 Phase III and beyond (1)

- Idiap will aim at remaining the "leading house" of an IM2 "Virtual Institute". Building and branding of a "Swiss Institute in Multimodal Information Management (SIMIM or SIM2)" should be initiated asap.

- SIM2 should involve all the current IM2 partners, and go beyond that (being attractive enough to create a real Swiss community):

  - EPFL and Idiap together have concrete joint development plans to keep building upon IM2, and are developing concrete mechanism to continue the activities beyond the funding period of IM2-III

  - Geneva: The CVML and Viper group will be an integral part of the IM2 Virtual Institute spawning from Phase 3 and will continue to be connected with all its members and participate to SIM2 events.

IM
INTERACTIVE
MULTIMODAL
INFORMATION
MANAGEMENT

IM2 Phase III and beyond (2)

- ETHZ: More extensive, multi-modal collaborations, partly running over:
  - the new IM2-MICS professor
  - the new SNF-Professor whose work is fully centered around the joint analysis of text and vision (V. Ferrari)
  - new projects
- UniFri: Position the Human-IST institute as a multidisciplinary center of competence in human computer interaction, both at the national and international levels, to introduce a Master of Advanced Studies in Human Machine Interaction, and to be an active part of SIM2

- ## Beyond Phase-III, scientific focus of SIM2 will evolve over time
  - To take new activities in multimodal interaction into account
  - To integrated new (national and international) projects

iM INTERACTIVE MULTIMODAL INFORMATION MANAGEMENT